REMARKS

Status of the Claims

Claims 1-34, 37-40, 59, 61, 63, 64, 66 and 67 are now pending in the application.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-34, 37-40, 59, 61, 63, 64, 66 and 67 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bosacchi et al. (U.S. Patent No. 4,625,114) in view of Podgorski (U.S. Patent No. 4,821,282).[1] Applicant respectfully traverses.

A *prima facie* case of obviousness has three distinct requirements. First, the references must teach or suggest every claim element. M.P.E.P. §§ 2142 and 2143.03. Second, there must be a motivation to modify or combine the teachings of the cited references, which may arise from a suggestion in the references, from the general knowledge in the art, or from "common sense." M.P.E.P. §§ 2143 and 2143.01; *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007). Third, there must be a reasonable expectation of success in performing the modified or combined teachings of the references. M.P.E.P. § 2143.02.

Applicant notes approvingly the Examiner's comment that "Bosacchi does not teach a reflective support being a separate element from the wafer." Office Action, page 3. However, Applicant notes again that this is not the only element recited in the pending claims that Bosacchi et al. does not disclose or suggest. In addition to the deficiency noted by the Examiner, Bosacchi et al. at least also does not disclose a

[1] Page 2 of the Office Action dated November 9, 2009, stated that the indicated claims were "rejected under 35 U.S.C. 103(a) as being unpatentable over Bosacchi et al. (USPN 4,625,114). In view of. [sic]." Applicants called the Examiner to clarify the rejection. By means of a voicemail message left with the undersigned on March 9, 2010, the Examiner confirmed that the claims were rejected as unpatentable over Bosacchi et al. in view of Podgorski, as set forth herein.

reflective support, and does not disclose a signal that includes information germane to total reflectance, as recited in all of the pending claims.

First, Bosacchi et al. does not teach a reflective support, regardless of whether the reflective support is a separate element from the wafer. The Office contends that Bosacchi et al. discloses "a substrate d2 which acts as a reflective support." *Id.* Applicant respectfully disagrees with this contention.

The "substrate d2" referred to by the Office is in fact not a substrate at all, but an integral thin film layer of the multilayer wafer being analyzed. See, *e.g.*, Bosacchi et al., col. 7, lines 12-31. In contrast, the pending claims recite that the wafer (*i.e.*, the entire wafer) is supported by a reflective support that is a separate component and not just a layer or portion of the wafer itself. In other words, the layer d_2 of Bosacchi et al. is not a separate component and does not support the wafer, but instead it is integral thin film part of the wafer itself. Layer d_2 is one of the layers of the wafer being analyzed, not a component of the analysis method or apparatus.

Bosacchi et al. also does not teach a signal that includes information germane to total reflectance of the radiation from the wafer, as recited in the pending claims. Instead, Bosacchi et al. teaches methods based on the "principles of frustrated total reflectance" using a collimated radiation source such as a laser. For example, see Bosacchi et al. at col. 8, lines 3-32. The use of laser-mediated frustrated total reflectance (in contrast to radiation transmitted directly onto a wafer surface), a coupler (rather than a source providing radiation directly incident on the wafer surface), and an output measurement as a function of angle, render the signal disclosed in Bosacchi et al. distinct from the signal including information germane to total reflectance of the radiation from the wafer, as recited in the pending claims.

Moreover, Bosacchi et al. does not disclose the acquisition of a signal by a non-contact technique, as recited in claims 11, 13, 64 and 66; does not disclose the acquisition of a signal using a reflectometer, as recited in claims 18, 19, 59, 61 and 63; and does not disclose the selection of a total reflectance value and correlating the selected value to a wavelength, as recited directly or indirectly in claims 26-28, 64 and 66. Further, claims 59 (claims 61 and 63 dependent therefrom) and 67 specifically recite the illumination of an upper surface of the thin wafer with radiation having one or more wavelengths corresponding to the moderately absorbing region. In addition to the deficiencies discussed above, Applicant submits that no disclosure or suggestion of these claim elements can be found in any of the cited references.

The teachings of Podgorski do not compensate for the deficiencies of Bosacchi et al. The Office asserts that Podgorski teaches a "mirror substrate" and that it would be obvious "to modify Bosacchi to employ a mirror substrate because it is well known that different wafer configurations are made." Office Action, page 3. Applicant notes that the instant claims do not recite a "mirror substrate." Applicant can only assume that the Office believes the mirror substrate of Podgorski represents a disclosure of the reflective support element recited in the instant claims.

Applicant respectfully disagrees with the Office's characterization of Podgorski. Podgorski, at best, discloses "a silicon wafer upon which a mirror coating is deposited thereon. The silicon wafer is then secured to a mirror substrate." See Podgorski at col. 1, line 68, to col. 2, line 2. In other words, Podgorski teaches placing a mirrored surface upon the silicon wafer itself. This mirror wafer is then permanently attached to a substrate, which may have a polished surface to allow for better assembly via optical

contact techniques. See *id.* at col. 3, lines 33-39. Podgorski does not teach or suggest a reflective support as recited in the instant claims. Thus, even when combined with Bosacchi et al., Podgorski does not even suggest each element of the instant claims.

Moreover, one of skill in the art, even upon combining the teachings of Bosacchi et al. and Podgorski, would not expect to successfully arrive at the claimed methods. Podgorski provides absolutely no suggestion or motivation to use a mirror substrate as a reflective support at all, much less in the methods recited in the pending claims. The Office asserts that one of skill in the art would combine Bosacchi et al. and Podgorski "because it is well known that different wafer configurations are made." Office Action, page 3.

Applicant submits that this assertion proves why the skilled artisan would not combine the references. Namely, the mirror substrate of Podgorski is part of the finished wafer assembly, while the reflective support recited in the instant claims is not. The reflective support instead is a separate element upon which the wafer is placed during the illumination process, and is not a component of the wafer itself. Thus, one of skill in the art would not see any reason to combine the mirror chip of Podgorski with the disclosure of Bosacchi et al. To the contrary, the skilled artisan would understand that a wafer substrate and a reflective support are different elements serving distinct purposes.

In summary, the cited references, even when combined, fail to teach each and every element of the instant claims or to provide a reasonable expectation of success in performing the combined teachings. Thus, a *prima facie* case of obviousness has not been established. Accordingly, for at least the reasons discussed above, Applicant respectfully requests that the rejections under 35 U.S.C. § 103(a) be withdrawn.

Conclusion

In view of the foregoing amendments and arguments, Applicant respectfully requests the timely allowance of all pending claims. If the Examiner has any questions regarding this application, the Examiner is invited to contact the undersigned at 303-384-7551.

The fee required for a two-month extension of time is included with this paper. In the event that any additional fees are due in connection with this response, please debit Deposit Account No. 14-0460.

Respectfully submitted,

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By: _____

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